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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
9319P-000584

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

On August 15, 2007

Signature ____

Typed or printed name G. Gregory Schivley/Bryant E. Wade

Application Number	Filed
10/696,737	October 29, 2003

First Named Inventor
Hirotsuna MIURA

Art Unit	Examiner
2853	An H. Do

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

X

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record.
Registration number 27,382 / 40,344.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

____
Signature

G. Gregory Schivley / Bryant E. Wade
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August 15, 2007
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/696,737
Filing Date:	October 29, 2003
Applicant:	Hirotsuna MIURA
Group Art Unit:	2853
Examiner:	An H. Do
Title:	DROPLET EJECTING DEVICE, DROPLET EJECTING METHOD, AND ELECTRONIC OPTICAL DEVICE
Attorney Docket:	9319P-000584

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

ARGUMENTS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

In conjunction with Applicant's Pre-Appeal Brief Request for Review, Applicant contends that Sharma et al. (U.S. Pat. No. 6,364,459) cannot anticipate the claimed subject matter.

STATUS OF CLAIMS

Claims 1, 11-16 and 18-20 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sharma et al. (U.S. Pat. No. 6,364,459).

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 calls for a droplet ejecting device comprising: an ejector that is adapted to eject a liquid stored in a pressure chamber from an ejecting nozzle by applying pressure to the pressure chamber; an ejection timing detector that is adapted to detect a liquid column being ejected from the ejecting nozzle; a droplet separator that is adapted to give, to the liquid column, an energy that separates the liquid column from the liquid stored in the pressure chamber; and a controller that is adapted to control the droplet separator to give an energy at a timing when a predetermined time period has elapsed since the ejection of the liquid column detected by the ejection timing detector.

Independent claim 11 calls for a droplet ejecting method comprising: ejecting a liquid stored in a pressure chamber from an ejecting nozzle by applying pressure to the pressure chamber; detecting a liquid column being ejected from the ejecting nozzle; and giving, to the liquid column, an energy that separates the liquid column from the liquid stored in the pressure chamber, the energy being given at a timing when a predetermined time period has elapsed since the ejection of the liquid column.

ARGUMENT

Claim 1 calls for an ejection timing detector that is *adapted to detect* a liquid column being ejected from the ejecting nozzle. Claim 1 also calls for a controller that is adapted to control the droplet separator to give an energy at a

timing when a predetermined time period has elapsed *since the ejection of the liquid column detected by the ejection timing detector.*

Claim 11 calls for *detecting* a liquid column being ejected from the ejecting nozzle. Claim 11 also calls for giving, to the liquid column, an energy that separates the liquid column from the liquid stored in the pressure chamber, the energy being given at a timing when a predetermined time period has elapsed *since the ejection of the liquid column.*

One embodiment of the claimed configuration is described in Applicant's specification at page 9, line 17 – page 10, line 19:

> Fig. 2 is a schematic view of laser 200 and cylindrical lens 210. As shown in the figure, laser 200 has a strip-shaped emitting surface 202 emitting laser beam, and is able to emit either a high or low-power laser beam. Cylindrical lens 210 is a convex lens, and concentrates a laser beam emitted from laser 200 along a straight line to penetrate each liquid column ejected from each nozzle 140. In other words, laser 200 and cylindrical lens 210 give energy to a side surface of the protruded liquid column.
>
> Next, a difference between a low-power laser beam and a high-power laser beam emitted from laser 200 will be explained. The high-power laser beam, when it is concentrated on a liquid column by means of cylindrical lens 210, causes a point in the column at which it is concentrated to heat up. The high-power laser beam accelerates a droplet separation (as is explained in more detail later in the description), thereby assisting formation of a droplet from the liquid column. Conversely, a low-power laser beam gives almost no heat to the liquid column, and is instead employed to detect a starting point of ejection of the liquid.

In Figs. 1 and 2, a photoreceptor 230 is provided facing laser 200 and positioned behind each liquid column when viewed from laser 200 so as to correspond respectively to each nozzle 140. In other words, each photoreceptor 230 is provided facing laser 200 through each liquid column. Photoreceptor 230 detects a liquid ejecting starting point in response to a reception of a low-power laser beam. Specifically, when no liquid is being ejected, photoreceptor 230 receives a low-power laser beam with little loss of power because there is no obstacle between cylindrical lens 210 and photoreceptor 230. Upon receiving a low-power laser beam, photoreceptor 230 supplies a reception signal RS to control unit 300. On the other hand, a laser beam does not reach photoreceptor 230 once the liquid column has started to protrude to such an extent that it intercepts the laser beam emitted from laser 200 toward photoreceptor 230. The laser beam is instead reflected, absorbed or scattered, and does not reach photoreceptor 230. Photoreceptor 230, when detecting that the low-power laser beam is no longer received, stops supplying the reception signal RS to control unit 300.

The Office Action states that Figure 2 of Sharma discloses a row of liquid column 60 being *detected* by the light beam 70 from the light source 75. Applicant respectfully disagrees.

In Sharma, the light beam 70 is merely used for causing droplet meniscus 60 to extend but is <u>not</u> used for *detecting* a liquid column being ejected. In Figure 2, the light beam 70 emitted from light source 70 causes menisci 60 to extend. Menisci 80 is the menisci after the extension. This is clearly described in column 3, lines 35-40, and column 3, line 66 - column 4, line 2.

To detect something by light, in other words, to use a light sensor, requires some kind of a light receiver device. However, Sharma does not disclose such a light receiver device. This omission by Sharma supports the conclusion that Sharma's light is merely used for causing droplet meniscus to extend but is <u>not</u> used for *detecting* a liquid column being ejected as claimed. Inasmuch as Sharma fails to disclose detecting, Sharma clearly fails to teach detecting a start timing at which a liquid column starts being ejected as claimed.

In view of the shortcomings of Sharma, Sharma cannot anticipate claims 1 and 11. For at least the same reasons, Sharma cannot anticipate claims 12-16 and 18-20 depending from claims 1 and 11.

Respectfully submitted,

Dated: Aug. 15, 2007

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